



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D350-636-012
Job Sheet 177752



Part No: D350-636-L 12

Job Qty: 1 ea

Part Name: Skidtube RH, Std Wearplates, DART (Apical) Cylindrical/Aerazur Float Comp.



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 5/17/18

Job Tracking No:

Due Date: 6/21/18

Created By: Michelle Gagnon-Donovan

Type: SOLD

Description:

Note: DWG D3492 REV E SHEET 1, D2750-042 REV G SHEETS 1,2,5,9 IPP Rev:I 02.09.25 IPP Rev:J 06-03-23 As per Rev D IPP Rev:K 06-07.13 As per dsi9343 IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verf:EC IPP Rev:M 08-04-22 DD verified:EC IPP Rev:N 08-09-23 revF DD verified:ec IPP Rev:O 09-02-06 per PAR09-010 DD verf:EC IPP Rev:P 10.06.22 revise seq110 DD verf:EC IPP Rev:Q 10.10.01 as per IIN revH DDverf:EC IPP REV:R 13.08.27 PER ECN13-594 DD VERF:JLM

Ship Via:

Bill of Materials



Container No: S081937



Part: D350-636-012

Job No: 177752

Serial No/Batch: S081937

Revision:

Inspector:

Exp Date:

Instructions:

Dart Aerospace Ltd.
1270 Aberdeen Street
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CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
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Date: 06/18/18

SCRAP
P.T.O.

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea		6/21/18	0.00	0.00	Start Up Skid tubes-1		JY
110	Skid tubes	1 pcs		6/21/18	0.00	4.36	Skid tubes-4		JY BE
120	QC	1 pcs		6/21/18	0.00	0.00	QC10		PD 15-06-23
130	QC	1 pcs		6/21/18	0.00	0.00	QC5		PD 15-06-23
140	HandFinish	1 pcs		6/21/18	0.00	0.91	HandFinish1		BEB 18-07-03
150	QC	1 pcs		6/21/18	0.00	0.00	QC7-2		BE
160	Skid tubes	1 pcs		6/21/18	0.00	4.36	Skid tubes-1		JY BE
170	QC	1 pcs		6/21/18	0.00	0.00	QC10		38 DAS
180	QC	1 pcs		6/21/18	0.00	0.00	QC5		9-89 38
190	HandFinish	1 pcs		6/21/18	0.00	0.91	HandFinish2		DR 08/08/13
200	SprayPaint	1 pcs		6/21/18	0.00	0.69	Spray Paint		DAS
205	Outsource	1 pcs		6/21/18			ATE003-VC		AUG 22 2018
210	QC	1 pcs		6/21/18	0.00	0.00	QC14		18-08-28
230	HandFinish	1 pcs		6/21/18	0.00	0.91	HandFinish4		N
240	QC	1 pcs		6/21/18	0.00	0.00	QC5		
250	Packaging	1 pcs		6/21/18	0.00	0.00	Packaging1-3		
260	QC	1 pcs		6/21/18	0.00	0.00	QC4		
265	DC	1 pcs		6/21/18	0.00	0.00	DC		
270	Packaging	1 pcs		6/21/18	0.00	0.00	Packaging3-1		
280	QC21-FG	1 Ea		6/21/18	0.00	0.00	QC21		

Part Op 110 - 1- Pick D2600-3 Bent Drill pilot holes as per Dwg D2750 sheet 4 (D2750-2 details). Drill using drill Jig DT8150 & Descriptions: DT8863A for second side only DT8863B for first side (detail K) 4- Locate DT8329 off of blade fitting bolt holes and drill pilot holes for blade fitting. Open to 0.500" using hole saw. VERIFY AND RECORD FWD BEND ANGLE. 6- Drill pilot holes for wearplates as per Dwg D2750 using DT8108 open to 0.297". 7- Open up holes of Detail J to 0.297" (total of 2 holes per side) 8- Weld D2744 Cap as per Dwg D2750 and QSI 004. Fill grooves in bend left from bending as per QSI 004 9- Grind welds flush as per Dwg D2750

160 - 1- Open up holes of Detail L using hole saw and ground handling to 0.625" (total of 8 holes per side) as per dwg D2750. 2- Open up holes of Detail K using hole saw to 0.750" (total of 4 holes per side) as per dwg D2750. 3- Open float holes using uni-bit to .500" (4 per Side) 4- Chamfer holes of Detail K, L, ground handling and float holes per dwg D2750 (welding instructions on sheet 9) 5- Deburr and blow out all chips from inside of tube 6- Prepare tube for welding, remove alodine as required. 7- Bond web D2739 in place as per QSI 015, let cure for 12hrs. A/R Sikaflex-291 batch: 138834 exp. date: ***ATTN: USE I-BEAM LOCATION AID (BLADE FITTING)*** 8- Weld spacers D3490-1, D3490-3 and D2743 as per dwg D2750 & QSI004 (welding instructions on sheet 9) A/R Aluminum Rod batch: 9- At section AP-AP drill out x-bolt spacer to 0.404" 10-Grind welds flush as per Dwg D2750 11- Spot face ground handling holes section (total of 4 places per side) as per dwg D2750 12- Deburr holes, ensure tube is free of all scratches before sending to paint.

180 - ***VERIFY C'BOARD IS GOOD***

190 - Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.

200 - 1- PRIME AS PER DWG AND QSI 005 4.2 PRIMER PRC DESOTO 515X349 BATCH: 2- PAINT WHITE AS PER DWG AND QSI 005 4.2 PAINT BATCH:

210 - Inspect for foreign object per QSI 024

230 - 1-Install inserts as per dwg D2750 2-Inspect for Foreign Objects 3-Install blade fitting D3488-042, wearshoes and ground handling hardware as per dwg D2750 SIKA FLEX 241 BATCH: 4- assemble o'ring to plug as per dwg D3492 and apply o'ring lube A/R 55-o'ring lube batch: 5-Coat all exposed fasteners with "LPS Procyon" batch:

265 - record fwd angle: Photocopy blue file and type labels per PPP D350-636-012 CHG 007

270 - Package as per PPP D350-636-012

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☒ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☒ Engineering ☐ Quality ☐ Other ☐			
Date : 18-04-23	Step #: 205	QTY Effective : 8		MRB (QSI042) Approval DAS 9 9-89 18-04-23	
Description Work Order Deviation		Disposition			
P0040812 from Atelier Debosselage qty 8 of 9 Excessive over spray from paint was found all along the bottom of the skidtube. resulting in poor quality finish S100685 S095931 S098857 S080522 S081937 S095884 S100172 S082729		Return qty 8 back to supplier to be rework by scuffing and removing all imperfection and repaint.		Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☒ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☒ Misread ☐ Turning Sequence ☐			
		OTHER : _____			

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☒ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☒ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : <u>18-08-23</u>		Step #: <u>230</u>		QTY Effective : <u>①</u>		MRB (QSI042) Approval DAS 9 9-89 <u>18-08-23</u>	
Description Work Order Deviation				Disposition			
<u>Not able to install blade fitting</u> <u>R.C. web was not install correctly.</u> <u>Operator did not use I-Beam location</u> <u>aid as per routing instruction</u>				<u>Scrap destroy</u> <u>Instruct employee to use <u>and</u></u> <u>follow work instruction.</u>			
				Completed By <u>DD</u> <u>18-08-23</u>			
				Lead hand / Supervisor Approval Verification 			
				QC / QA Coordinator Approval			
Root Cause Environment ☐ No Re-verification ☐ Design ☒ Operator ☐ Doc/Data ☐ Offset/Setup ☐ Equip/Tooling ☐ Supplier ☐ Handling/Pre ☐ Training ☐ Material ☐ Use for Testing ☐ Internal Transport ☐ Poor Information ☐ Tribal Knowledge ☐ Rushing ☐ LOA ☐ Product Improvement ☐ Substation ☐ Process Improvement ☐ Past Expiry Date ☐ Manufacturing Process ☐ Misidentified ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ ☒ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence					
		OTHER : _____					

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D2600-3-BENT-RH	Extrusion Bent RH	1 Ea (1 ea)	90-Start up Operation	5073308
D2744	Cap	1 Ea (1 ea)	110-Skidtubes	5063692
D2739	350 I-Beam	1 Ea (1 ea)	160-Skidtubes	5079760
D2743	Crossbolt Spacer	8 Ea (8 ea)	160-Skidtubes	5090662
D3490-1	Cross Bolt Spacer	4 Ea (4 ea)	160-Skidtubes	5065863
D3490-3	Cross Bolt Spacer	4 Ea (4 ea)	160-Skidtubes	5066254
ALS4-1032-225	Rivnut	38 Ea (38 ea)	230-HandFinish	5058138
AN3C5A	Bolt	34 Ea (34 ea)	230-HandFinish	5045214
AN3C6A	Bolt	4 Ea (4 ea)	230-HandFinish	5076000
AN6C44A	Bolt	4 Ea (4 ea)	230-HandFinish	5066333-1
AN8C35A	Bolt	1 Ea (1 ea)	230-HandFinish	FM1137207
D2745	Bushing	8 Ea (8 ea)	230-HandFinish	5091818
D3488-042	Blade Fitting RH	1 Ea (1 ea)	230-HandFinish	5093460
D3492-1	Plug	8 Ea (8 ea)	230-HandFinish	5077562
D3492-3	Plug	8 Ea (8 ea)	230-HandFinish	5091846
D3535-25	Wearplate Center	1 Ea (1 ea)	230-HandFinish	5080036
D3536-25	Gasket Center	1 Ea (1 ea)	230-HandFinish	5081730
D3537-1	Wearpad	3 Ea (3 ea)	230-HandFinish	5058407
D3631-1	Washer	8 Ea (8 ea)	230-HandFinish	5083461
D3791-1	Wearpad	1 Ea (1 ea)	230-HandFinish	5081690
D3793-1	Wearplate Fwd	1 Ea (1 ea)	230-HandFinish	5089345
D3793-3	Wearplate Aft	1 Ea (1 ea)	230-HandFinish	5089446
D3794-1	Gasket Fwd	1 Ea (1 ea)	230-HandFinish	5071975
D3794-3	Gasket Aft	1 Ea (1 ea)	230-HandFinish	5091738
MS21043-6	Nut	4 Ea (4 ea)	230-HandFinish	5083547
MS21083C8	Nut	1 Ea (1 ea)	230-HandFinish	5090632
NAS1149C0332R	Washer	38 Ea (38 ea)	230-HandFinish	5071663
NAS1149C0832R	Washer	1 Ea (1 ea)	230-HandFinish	5086714
NAS1515H3L	Washer	4 Ea (4 ea)	230-HandFinish	M1138409-121
NAS1611-010	O-Ring	8 Ea (8 ea)	230-HandFinish	5092499
NAS1611-013	O-Ring	8 Ea (8 ea)	230-HandFinish	5083560
AN8C21A	Bolt	2 Ea (2 ea)	250-Packaging	
D2741	Replacement Blade	1 Ea (1 ea)	250-Packaging	
D3493-1	Washer	2 Ea (2 ea)	250-Packaging	
D3532-1	Spacer	2 Ea (2 ea)	250-Packaging	
MS21083C8	Nut	2 Ea (2 ea)	250-Packaging	
NAS1149D0863J	Washer	2 Ea (2 ea)	250-Packaging	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D2600-3-BENT-RH	1	1	0
110-Skidtubes	D2744	1	86	0
160-Skidtubes	D2739	1	10	0
	D2743	8	86	0
	D3490-1	4	128	0
	D3490-3	4	107	0
230-HandFinish	ALS4-1032-225	38	5,405	0
	AN3C5A	34	1,802	0
	AN3C6A	4	266	0
	AN6C44A	4	351	0
	AN8C35A	1	47	0
	D2745	8	113	0
	D3488-042	1	14	0
	D3492-1	8	88	0
	D3492-3	8	87	0
	D3535-25	1	24	0
	D3536-25	1	31	0
	D3537-1	3	169	0
	D3631-1	8	931	0
	D3791-1	1	36	0
	D3793-1	1	30	0
	D3793-3	1	29	0
	D3794-1	1	55	0
	D3794-3	1	29	0
	MS21043-6	4	200	0
	MS21083C8	1	125	0
	NAS1149C0332R	38	7,418	0
	NAS1149C0832R	1	66	0
	NAS1515H3L	4	199	0
	NAS1611-010	8	569	0
	NAS1611-013	8	365	0
250-Packaging	AN8C21A	2	96	0
	D2741	1	87	0
	D3493-1	2	57	0
	D3532-1	2	40	0
	MS21083C8	2	125	0
	NAS1149D0863J	2	119	0

Part Specifications

Specifications could not be found.

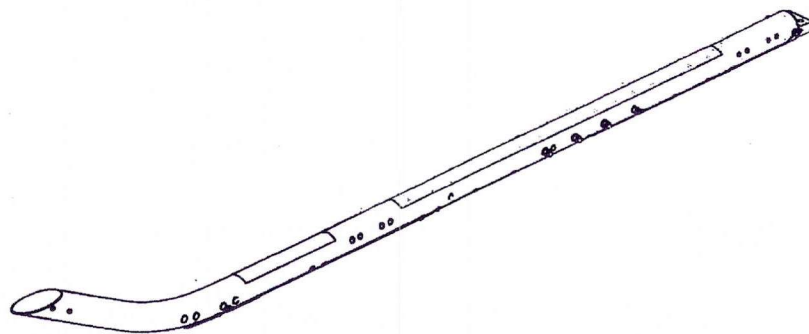
Plex 5/17/18 12:22 PM Dart.Gagnon.Michelle

1)	MATERIAL: ACME D2750-11-21-3/4 FROM D2600-3 EXTRUSION (INITIAL LENGTH = 120.0).
2)	FINISH: ACID ETCH, ALUMINE ASSEMBLY PER DART QSI 005 4, 1 PRIOR TO INSTALLING D2739 WEB. STANDARD: PRIME REF. 12.1, 3.3) AND PAINT WHITE PER DART QSI 005 4, 2 OPTIONAL: POWDER COAT WHITE (REF. 4.3, 3.1) PER DART QSI 005 4, 3
3)	TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED BLACK ANTI-SPID PAINT AS INDICATED TO 1.0 ABOVE SKIDTUBE CENTER-LINE PER DART 005 4, 4 (OPTIONAL).
4)	UNITS: INCHES UNLESS OTHERWISE NOTED
5)	BREAK SHARP EDGES: N/A
6)	IDENTIFICATION: N/A
7)	WEIGHT: D2750-04.1/042/043/044 = 26.5 LBS
8)	WELD PER DART QSI 004
9)	INSTALL ALPS-1032-225 INSERTS AFTER FINISH AS INDICATED
10)	FINAL CONFIGURATION SHOULD HAVE THE FOLLOWING MINIMUM MECHANICAL PROPERTIES:
11)	MINIMUM YIELD TENSILE STRENGTH = 35 KSI MINIMUM ULTIMATE TENSILE STRENGTH = 35 KSI COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCOYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF FINISH WITH MEK DEGREASER.
12)	SPACER AND PLUG INSTALLED SAME AS SECTION A-1 EXCEPT HORIZONTAL
13)	SPACER AND PLUG INSTALLED SAME AS SECTION A-1 EXCEPT HORIZONTAL

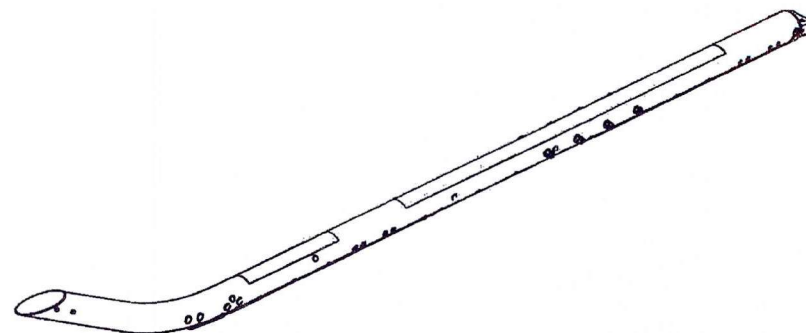
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FINISH: ACID ETCH, ALDOLINE ASSEMBLY PER DART QSI 005 4.1 PRIOR TO INSTALLING D2739 WEB.
STANDARD: PRIME (REF. 4.2.1.3.3) AND PAINT WHITE PER DART QSI 005 4.2
OPTIONAL: POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED TO 1.0 ABOVE SKIDTUBE CENTRE-LINE PER DART 0
TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED

SHOP COPY
RETURN TO

RELEASED
2013-08-13



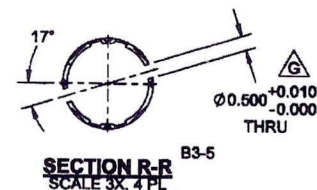
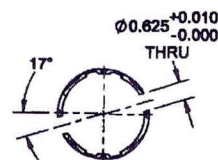
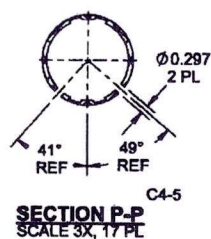
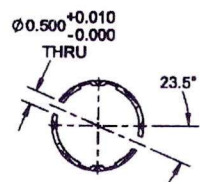
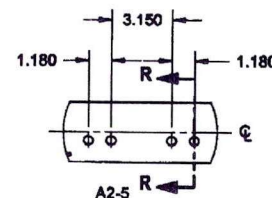
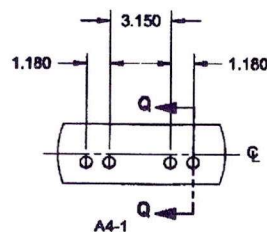
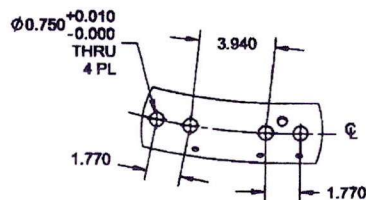
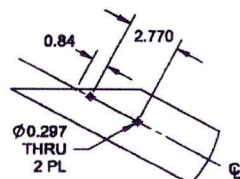
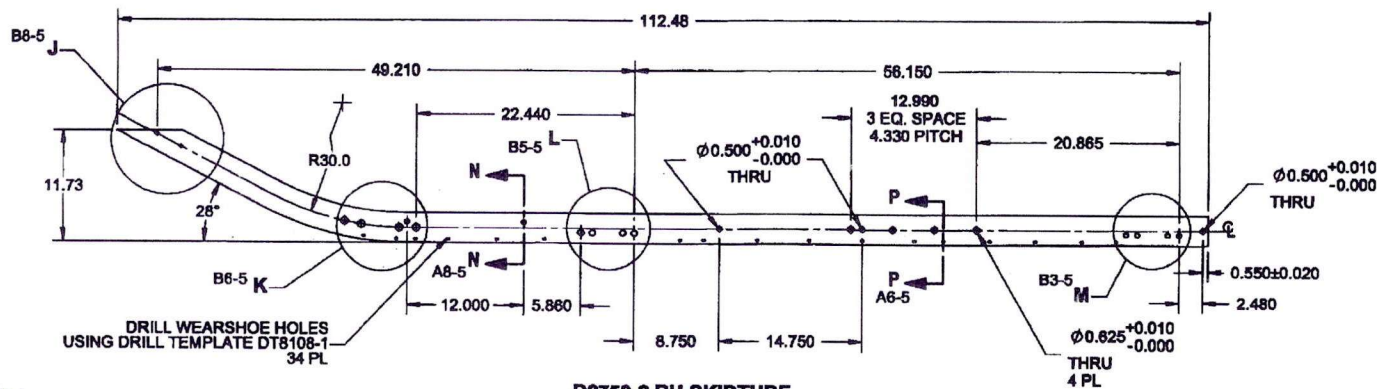
D2750-041 350 SKIDTUBE ASSEMBLY, LH



D2750-042 350 SKIDTUBE ASSEMBLY, RH

RELEASED
2013-08-13
MD

DESIGN	MM	DART AEROSPACE USA, INC.	
DRAWN	<i>[Signature]</i>	KENT, WA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. G
MFG. APPR.	<i>[Signature]</i>	D2750	SHEET 2 OF 11
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	350 SKIDTUBE ASSEMBLY	NTS
DATE	13.07.11	COPYRIGHT © 1990 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE USA, INC.	



RELEASED
2013-08-13

DESIGN	MM	DART AEROSPACE USA, INC.	
DRAWN		KENT, WA	
CHECKED		DRAWING NO.	REV. G
MFG. APPR.		D2750	SHEET 5 OF 11
APPROVED		TITLE	SCALE
DE APPR.		350 SKIDTUBE ASSEMBLY	NTS
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